

E Occupancy (2016) Task Force

Task Force Report and Recommendations



CAL FIRE – Office of the State Fire Marshal
Final October 8, 2016



Acknowledgements

This report was developed through the culmination and outstanding collaborative efforts of the many disciplines involved with the Office of the State Fire Marshal **E Occupancy (2016) Task force**.

Members of the E Occupancy Task Force (2016)

Greg Andersen – CAL FIRE - Office of the State Fire Marshal, Code Development and Analysis Division
Craig Rush – Department of the State Architect
Jim Hackett - Department of the State Architect
Dave Casey - Department of the State Architect
Jason Chavez - CAL FIRE - Office of the State Fire Marshal, Fire & Life Safety Division
Spencer Meyers - CAL FIRE - Office of the State Fire Marshal, Plan Review
Timothy Powell – CAL FIRE - Office of the State Fire Marshal, Fire & Life Safety Division
Vijay Mepani – CALFIRE - Office of the State Fire Marshal, Fire & Life Safety Division
Buddy Gessel –BakerNowicki Design Studio
John Frisbie – Johnson Consulting Engineers Inc.
Allen Evans – Mangini Associates Inc.
Kurt Cooknick, - American Institute of Architects California Council
Sandi Hasting – CAL Chiefs Southern California Fire Prevention Officers
Rocque Yballa - CAL Chiefs Northern California Fire Prevention Officers
Mark Mondragon - CAL Chiefs Northern California Fire Prevention Officers

The Office of the State Fire Marshal thanks each member and their organizations for their assistance with this important work.

Table of Contents

Acknowledgements	i
Table of Contents	ii
E Occupancy (2016) Group Scope.....	1
Recommendations	2
Reduce or eliminate the duplicate regulations	2
Fire Alarm Monitoring Requirements in CFC 907.6.6.2	2
Manual & Automatic Fire Alarm Requirements in CFC 907.2.3	3
Proposed Code Changes to the 2016 California Fire Code	3
Clarifying the intent of “Rooms” for use in CBC 452.1.4	11
Proposed Code Change to the 2016 California Building Code.....	11
The Rating of Corridors with a Fire Sprinkler System	11
Proposed Code Change to the 2016 California Building Code.....	12
Conclusion - Recommendations	12

E Occupancy (2016) Group Scope

The scope of the E Occupancy (2016) project was to provide clarity in the E occupancy regulations. The goal of the Task Force was to identify the issues that could be addressed through proposals in the 2016 Intervening Code adoption cycle. Issues that would take more time for the Task Force to discuss would be left for their continuing Task Force in the 2019 Code cycle. The scope was limited to the E occupancies that are defined in the California Building Code as "...the use of a building or structure, or portion thereof, by more than six persons at any one time for educational purposes through the 12th grade."

The Task Force established a subgroup that was a collaborative effort between the Office of the State Fire Marshal and the Department of the State Architect. The Department of the State Architect has the oversight responsibility for the E occupancy regulations for public schools. The subgroup identified common issues that create confusion in the E occupancy regulations. The subgroup also provided recommendations for clarification to the Task Force.

The roles of the Task force were to review the code sections that the subgroup had identified as being unclear and to consider the proposals and/or modifications for clarity. The Task Force was then responsible for the development of the proposed or amended language and provide recommendations. Upon completion, their final recommendation package was to be submitted to the State Fire Marshal for review.

The specific items the Task Force addressed in this code cycle were:

- **Reduction or elimination of duplicate regulations** – The E occupancies contain different regulations for private schools, public schools, and public schools funded under the Leroy Green Act. The Task Force identified the text that could be combined and located in one section and eliminate the unnecessary duplication.
- **Fire Alarm Monitoring Requirements in CFC 907.6.6.2**
The Department of the State Architect identified this as an area of confusion. The Task Force worked to provide clarifying language.
- **Manual & Automatic Fire Alarm Requirements in CFC 907.2.3**
The regulations require both a manual and automatic fire alarm system and then exempt the requirement for manual pull boxes. The committee worked to reduce the unnecessary text.

- **Clarifying the intent of “Rooms” for use in CBC 452.1.4**
The Department of the State Architect identified this as another area of confusion. The Task Force worked to provide clarifying language.
- **Proposed Change in the Rating of Corridors with a Fire Sprinkler System** - Kurt Cooknick with the American Institute of Architects proposed the elimination of the California Amendment on the rating requirement of E occupancies in building with fire sprinklers. The proposal was to adopt the International Building Code language, which is the model code that is the basis of the California Building Code. This would reduce the fire rating requirement in school corridors with fire sprinklers from one hour to non-rated.

Recommendations

Reduce or eliminate the duplicate regulations

The Task Force examined the duplication of the regulations. The California Fire Code regulations had been promulgated at a different time and from different sources. The Leroy F. Greene School Facilities Act, the Education Code, the current model codes from the International Code Council and the previous model codes based on the Uniform Building and Fire Codes were identified as sources for the regulations. This created different regulations for different situations based on public, private or funding sources. However, a large number of the regulations had become the same due to changes in the model code. In many cases, the regulations were exactly the same.

The Task Force recommends combining or grouping duplicative regulations where possible. This will reduce confusion and clearly show the differences in regulations based on public schools, funding source or private school. The regulations that are common to all of them will be located in one spot. These changes will provide clarity with no regulatory change.

Fire Alarm Monitoring Requirements in CFC 907.6.6.2

The fire alarm systems are required to be monitored to meet the Department of the State Architect’s mission of protecting life and property. There was confusion about whether or not a monitoring system was required

for a manual fire alarm system. The Task Force did not identify any reason to have a manual system monitored. The Task Force is recommending the addition of the word “automatic” to the description of the fire alarm system in CFC 907.6.6.2. The Task Force is also recommending some clarifying language on the description of monitoring and a pointer for the process when monitoring is terminated. These changes will provide clarity with no regulatory change.

Manual & Automatic Fire Alarm Requirements in CFC 907.2.3

The California Fire Code requires a manual and an automatic fire alarm system in E occupancies. The CFC 907.2.3.6.1 requires smoke detection in every room. So a code compliant system automatically meets the exceptions in CFC 907.2.3 and the manual fire alarm boxes are not required. The Task Force examined this and determined there was no need to require a manual fire alarm system when an automatic fire alarm system is installed. The committee is recommending the removal of the word “manual” and to remove the exceptions for manual pull boxes in this section. This change will provide clarity with no regulatory change.

Proposed Code Changes to the 2016 California Fire Code

[This is the combined proposed code changes from the three previous recommendations.]

SECTION 903 AUTOMATIC SPRINKLER SYSTEMS

903.2.3 Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m²) in area.
2. Throughout every portion of educational buildings below the lowest *level of exit discharge* serving that portion of the building.

Exception: An automatic sprinkler system is not required in any area below the lowest level of exit discharge serving that area where every classroom throughout the building has at least one exterior *exit* door at ground level.

3. In rooms or areas with special hazards such as laboratories, vocational shops and other such areas where hazardous materials in quantities not exceeding the maximum allowable quantity are used or stored.

4. Throughout any Group E structure greater than 12,000 square feet (1115 m²) in area, which contains more than one fire area, and which is separated into two or more buildings by fire walls of less than four hour fire resistance rating without openings.

5. For public school state funded construction projects see Section 903.2.19.

6. For public school campuses: Kindergarten through 12th grade and community colleges, see section 903.2.20

903.2.11.6 Other required suppression systems.

In addition to the requirements of Section 903.2, the provisions indicated in Table 903.2.11.6 also require the installation of a fire suppression system for certain buildings and areas.

903.2.19 Public school state funded construction projects for kindergarten through 12th grade – automatic sprinkler system requirements.

903.2.19.1 New public school campus. An automatic sprinkler system shall be provided in all occupancies. The provisions of this section shall apply to any public school project consisting of one or more buildings on a new school campus and receiving state funds pursuant to Leroy F. Greene School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, new campus refers to a school site, where an application for construction of original buildings was made to DSA on or after July 1, 2002.

An automatic fire sprinkler system is not required in locations identified in Section 903.2.20

~~Exceptions:~~

~~1. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.~~

~~2. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:~~

~~Concession Stand~~

~~Press Box~~
~~Restroom Facilities~~
~~Shade Structure~~
~~Snack Bar~~
~~Storage Building~~
~~Ticket Booth~~

903.2.20 Public School Campuses. An automatic fire sprinkler system is not required to be provided in the following locations on Kindergarten through 12th grade and community college public school campuses.

1. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.

2. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand
Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth

SECTION 907

FIRE ALARM AND DETECTION SYSTEMS

907.2.3 Group E. ~~An manual and automatic~~ fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies *with an occupant load of 50 or more persons or containing more than one classroom or one or more rooms used for Group E or I-4 day care purposes in accordance with this section.* When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system. One additional manual fire alarm box shall be located at the administration office or location approved by the AHJ.

Exceptions:

- ~~1. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.~~
- ~~2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:~~

~~2.1. Interior corridors are protected by smoke detectors.~~

~~2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.~~

~~2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.~~

- ~~3. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:~~

~~3.1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~3.2. The emergency voice/alarm communication system will activate on sprinkler water flow.~~

~~3.3. Manual activation is provided from a normally occupied location.~~

~~3.4. The capability to activate the evacuation signal from a central point is provided.~~

14. For public school state funded construction projects see Section 907.2.29.

2. For public schools see Section 907.2.3.7

3. For private schools see Section 907.2.3.8

907.2.3.7 Public School Campuses. An automatic fire alarm system in compliance with section 907.2.3 shall be provided in new buildings for all occupancies on Kindergarten through 12th grade public school campuses.

Exceptions:

1. A manual fire alarm system may be provided for a relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.

2. A fire alarm system is not required for detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Concession Stand

Press Box

Restroom Facilities

Shade Structure

Snack Bar

Storage Building

Ticket Booth

907.2.3.78 Private schools. An automatic fire alarm system shall be provided in new buildings of private schools.

Exception: Automatic detection devices are not required where an approved automatic sprinkler system is installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

907.2.3.89 Day-care, Group E.

907.2.3.89.1 An automatic fire alarm system shall be provided in all buildings used as or containing a Group E day-care.

Exception: Automatic detection devices are not required where an approved automatic sprinkler system is installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate on sprinkler water flow and manual activation is provided from a normally occupied location.

907.2.3.89.2 Smoke detectors shall be installed in every room used for sleeping or napping.

907.2.3.10 Day-care, Group E or Group I-4 located on a public school campus. An automatic fire alarm system shall be provided in all buildings used as or containing a Group E or Group I-4 day-care.

907.2.29 Public school state funded construction projects for kindergarten through 12th grade – automatic fire alarm system requirements.

~~**907.2.29.1 New public school campus.** An automatic fire alarm system shall be provided in all occupancies that activates the occupant notification system signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6. The provisions of this section shall apply to any public school project consisting of one or more buildings on a new school campus and receiving state funds pursuant to Leroy F. Greene School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, new campus refers to a school site, where an application for construction of original buildings was made to DSA on or after July 1, 2002.~~

Exceptions:

- ~~1. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. Also see CCR, Title 24, Part 1, California Administrative Code, Section 4-314 for definition of relocatable building.~~
- ~~2. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:~~

~~Concession Stand
Press Box~~

~~Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth~~

~~3. Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation of the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5.~~

~~**907.2.29.2 New building on an existing public school campus.** An automatic fire alarm system shall be provided in all occupancies. The provisions of this section shall apply to any public school project construction of a new building on an existing campus and receiving state funds pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, an existing campus refers to a school site, where an application for construction of original buildings was made to DSA prior to July 1, 2002.~~

Exceptions:

~~1. A construction project that has an estimated total cost of less than \$200,000.~~

~~2. A relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. See California Administrative Code, Section 4 314 for definition of relocatable building.~~

~~3. Detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:~~

~~Concession Stand
Press Box
Restroom Facilities
Shade Structure
Snack Bar
Storage Building
Ticket Booth~~

907.2.29.31 Alterations to existing buildings on an existing public school campus. An automatic fire alarm system shall be provided for all

portions within the scope of an alteration project. The provisions of this section shall apply to any public school project on an existing campus and receiving state funds pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code sections 17070.10 through 17079. For purposes of this section, an existing campus refers to a school site, where an application for construction of original buildings was made to DSA prior to July 1, 2002.

Exceptions:

1. A manual fire alarm system may be provided for a construction project that has an estimated total cost of less than \$200,000.

2. A manual fire alarm system may be provided for a relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. See California Administrative Code, Section 4-314 for definition of relocatable building.

3. A fire alarm system is not required for detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

Storage Building

Ticket Booth

Concession Stand

Snack Bar

Restroom Facilities

Shade Structure

Press Box

~~907.2.29.4 Day care, Group E or Group I-4 located on a public school campus.~~ ~~An automatic fire alarm system shall be provided in all buildings used as or containing a Group E or Group I-4 day care.~~

907.6.6.2 Termination of monitoring service. Termination of fire alarm monitoring services shall be in accordance with Section 901.9.

907.6.6.3 Group E schools. Automatic fire alarm systems shall be monitored and shall transmit the alarm, supervisory and trouble signals to an approved supervising station in accordance with NFPA 72. The supervising station shall be listed as either UUFX (central station) or UUIS (remote & proprietary) by the Underwriters Laboratory Inc. (UL) or other approved listing and testing laboratory or shall comply with the requirements of FM 3011. Termination of monitoring services shall be in accordance with Section 907.6.5.2.

Clarifying the intent of "Rooms" for use in CBC 452.1.4

There is some confusion on the restriction of CBC 452.1.4, which does not allow rooms used by kindergarten through second grade above or below the first floor. The Task Force is recommending the addition of "and other spaces" to the section. This will clarify the intent of restricting the location of lunch rooms and other areas besides the classrooms. This will provide clarity with no regulatory change.

Proposed Code Change to the 2016 California Building Code

CHAPTER 4

SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

452.1.4 Special provisions. Rooms and other spaces used by kindergarten, first-, or second-grade pupils, and Group E day care, shall not be located above or below the first story.

The Rating of Corridors with a Fire Sprinkler System

The Task Force considered the proposal presented by Kurt Cooknick. The proposal was to eliminate the California amendment to the table in CBC 1020.1 and use the model code text. The amendment requires a one-hour corridor in an E occupancy with fire sprinklers. The model code of ICC allows a non-rated corridor when it has fire sprinklers. The proponent showed the changes in classroom design and the integration of collaborative learning areas with more open space.

The Task Force discussed the proposal and presented no concerns on the change. The Task Force unanimously decided to recommend this code change. This change will allow more design options for school construction and may lower the cost of construction.

Proposed Code Change to the 2016 California Building Code

SECTION 1020 CORRIDORS

TABLE 1020.1 CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system^c
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5, L	Greater than 30	Not Permitted	1
A ^d , B, F, M, S, U	Greater than 30	1	0
R-1, R-2, R-3, R-3.1, R-4	Greater than 10	Not Permitted	1
I-2 ^a , I-2.1, I-4	<i>Greater than 6</i>	Not Permitted	1
I-3, R-2.1	<i>Greater than 6</i>	Not Permitted	1 ^b
E	<i>Greater than 10</i>	1	<u>10</u>

Conclusion - Recommendations

The Task Force spent a significant amount of time discussing the recommendations from the subgroup and other submitted proposals. The Task Force wanted to bring clarity to the code requirements as well as have consensus on the intent of the regulations. The members of the Task Force agreed on the recommendations contained in this report to the State Fire Marshal.

The Task Force is recommending the proposed changes to the California Fire Code and the California Building Code that the Task Force developed within this report. These proposed code changes will bring uniform and consistent application of the California Building Standards to Group E occupancies.